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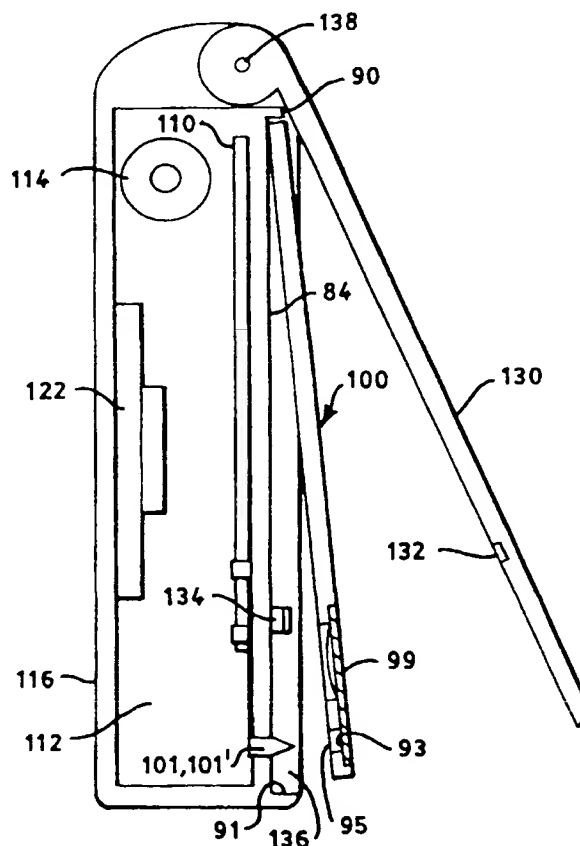
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(54) Title: TALKING TRADING CARD PLAYER SYSTEM

(57) Abstract

A talking trading card playing system consists of a portable card player and a plurality of trading cards. Each card includes a card body having front and back surfaces and a voice chip for storing and generating sound patterns. The portable player comprises a power source located in the housing for supplying electrical power to the voice chip, and sound generation components. The subject trading card and player may be activated by aligning the card (99) with electrical contacts on the face of the player, thereby establishing electrical contact between the card and the player (134). An optional cover (130) on the card player, when closed, substantially encloses the card within the player and provides the required pressure on the card to maintain electrical contact between the card and the player. Alternatively, a resilient contact element on the card support surface prevents an electrical connection between the card and player from being established until a predetermined force is applied to the card.



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TALKING TRADING CARD PLAYER SYSTEM

RELATED APPLICATIONS

This application is a continuation-in-part of application Serial No. 08/990,509, filed on December 15, 1997, which is a continuation-in-part of application Serial No. 08/519,839, filed on August 25, 1995 and scheduled to issue
5 on December 29, 1998 as United States Patent No. 5,855,001.

BACKGROUND OF THE INVENTION

This invention relates to collectable cards, and in particular, sports trading cards such as baseball cards, hockey cards and the like.
10

Baseball cards and other sports trading cards have been available since the turn of the century. These cards typically display an action photograph or other image of a baseball player or other athlete on the front face, and statistics and other personal information about the player on the back face. Collecting and trading
15 baseball cards and other sports cards is a popular hobby engaged in by both children and adults. Sports cards tend to appreciate in value over the years, with rare cards such as the 1909 Honus Wagner baseball card being valued at several hundred thousand dollars.

20 In recent years, collecting sports cards has increased in popularity, particularly among younger collectors. Card manufacturers have responded to this increase in popularity by introducing innovations such as holographic logos and gold-plated collector sets. However, conventional sports trading cards are passive, and the type of information provided thereon has remained relatively constant over
25 the years. The present inventors have recognized a need and demand for sports cards which provide more information and value than that available from conventional passive sports cards.

An active trading card, which provides sounds in addition to the standard

graphics and text contained on a traditional trading card, is the subject of co-
pending Application Serial No.08/433,851 filed May 2, 1995, and owned by the
Assignee of the subject application. This talking trading card is self-contained, in
that the speaker assembly, the replaceable battery, and the electronic data storage
and processing components are all built into the card. It also has a relatively thin
card profile. However, this card construction places certain constraints on the size,
quality and cost of the components thereof.

There exist card reading devices which utilize scanning mechanisms for
reading information from cards. In some cases, these devices are used with trading
cards as part an interactive sports game. The information is typically stored in the
form of bar-codes or magnetic strips mounted on a card which is scanned by a
reader device for use in the relevant application.

These prior art systems have certain disadvantages. They utilize mechanical
or quasi-mechanical processes for scanning data and transforming it into an
electrical format, which tend to suffer from data entry error arising from
mechanical imprecision. Those prior art devices which utilize physical storage
methods, for example magnetic strips, sometimes experience data integrity
problems resulting from wear caused by frequent use. Data integrity may also be
lost through unintentional physical contact between the user and these forms of
exposed data storage. Furthermore, the data storage capability of a bar-coded or
magnetic strip, or other mechanical or quasi-mechanical means, is very limited.
The data so stored is therefore used typically as a key or reference to one of a set
of data groups required, for instance, to execute an interactive sports game, and
which is stored in the "player" part of the system. The data stored on such cards is
inadequate in capacity for even a few seconds of digitized sound message, as
offered by this invention.

These prior art systems also tend to be bulky, expensive, and not-easily
portable. Accordingly, they are not well suited to the collection of trading cards.

SUMMARY OF THE INVENTION

The present invention relates to an improved talking trading card system which utilizes a trading card containing sound data stored on an integrated circuit chip embedded within the trading card, and a separate portable card player housing batteries and a speaker.

Eliminating the need for each card to contain its own power source and speaker components reduces the cost of each card. At the same time, placing the power source in the card player allows for the use of a wider range of power sources with various storage capacities and cost levels. The subject trading cards can also achieve a thinner profile than self-contained talking cards. Furthermore, the subject portable player is capable of producing higher quality and louder sound at a lower cost, than cards containing a speaker.

The subject trading card comprises a card body of predetermined dimensions having a front surface and a back surface. Electronic storage means for storing sound pattern data is located between the front surface and the back surface of the card body. Card contact means electrically connected to the electronic storage means enables electrical contact with the subject card player.

The corresponding subject portable player comprises a pocket-sized player housing dimensioned to removably receive the card. The player housing contains sound generating means for generating sounds, power means for supplying electrical power to the sound generating means, and player contact means for making electrical contact with the card contact means.

The subject invention further comprises processing means for receiving sound pattern data from the storage means and sending electrical analogue signals to the sound generating means correlatable with the sound pattern data.

In a preferred embodiment, the subject trading card includes a card housing

containing the electronic processing means, having flexible sheets containing graphics affixed to the front and back surfaces thereof. This card housing provides rigidity to the trading card, as well as added protection for the processing means

5 The subject trading card is preferably provided with a rectangular aperture in the card housing shaped to fit a circuit board containing the electronic storage and processing means. The housing may include a support ledge near the aperture for supporting a portion of the circuit board, assisting to hold the circuit board in place. The card housing may also have a series of small circular apertures
10 positioned to expose the card contact means located on the circuit board.

 The currently preferred embodiment of the card player of the subject invention preferably comprises a portable pocket-sized player housing capable of successively playing a plurality of electronic trading cards, each trading card
15 containing therewithin an electronic voice chip for processing stored sound pattern data, and having electrical contacts on the surface thereof for providing electrical contact with the voice chip data.

 Mounted within the housing are sound generating means for generating
20 sounds from the sound data contained on the card and power means for supplying electrical power to the voice chip and sound generating means. The player housing further comprises retaining means on the top surface of the player housing for removably retaining a leading edge of a trading card and player contact means which protrude from the top surface of the player, thereby making electrical
25 contact with the player contact means when pressure is applied to the face of the trading card forcing it to the top surface of the card player.

 The card player retaining means preferably comprises a retaining wall extending upwardly from an edge on the top surface of the player housing and
30 having a card retaining slot along the length of the inside face of the retaining wall, said retaining slot is shaped to receive the edge of a trading card and two parallel

side walls extending upwardly from parallel edges of the top surface of the player housing.

5 The player contact means preferably comprises a plurality of thin narrow conductive contacts having one end fixed and extending from the circuit board within the player housing and the other end free with a resilient tip which protrudes from the top surface of the player housing containing the retaining means and adapted to fit through the apertures of the card body to make contact with the card contact means.

10

 According to another embodiment of the invention, there is provided a portable card player for use with a trading card having electronically stored therein sound pattern data representative of preselected patterns of sound, and a signal generator for generating analog electrical signals representative thereof, and having
15 card contacts for enabling electrical contact with the player. The player comprises a player housing dimensioned to removably receive the card; player contacts located in the player housing for making electrical contact with the card contacts and for receiving the analog electrical signals therefrom; a sound generator located in the player housing and including a transducer, for generating sounds in response
20 to the received analog signals; and a source of power located in the player housing for supplying electrical power to the trading card and to the sound generator. The player housing includes a base, a cover hingedly connected to the base, and a card support surface. The cover is movable between an open position and a closed position over the card support surface. When the card is installed in the player on
25 the card support surface and the cover is in the closed position, the card is substantially enclosed within the player, and the card contacts register with the player contacts to establish an electrical connection therebetween.

 In one embodiment, the player housing includes a retaining element for
30 retaining the cover in a closed position and for frictionally engaging the cover with the base. In a preferred embodiment, the player housing includes at least one tab on

one of the cover and the base, and at least one corresponding slot on the other of the cover and the base. The tab frictionally engages with the slot when the cover is in a closed position. The pressure of the closed cover against a card installed in the player establishes and maintains an electrical connection between the card contacts and the player contacts.

The player contacts preferably include a plurality of primary player contacts having resilient tips which protrude from a circuit board within the player housing to a predetermined height through apertures in the card support surface.

In one embodiment, at least one conductive secondary player contact protrudes from the card support surface to a height which is less than the predetermined height to which the primary contacts protrude, so that an electrical connection between the card contacts and the player contacts is prevented until a predetermined force is applied to the card toward the card support surface to establish an electrical connection between the primary player contacts, as well as between the secondary player contact and the card contacts. In this embodiment, unless sufficient force is applied to the card to ensure that such electrical connection is made, the card player is inoperative.

In another embodiment, the player housing includes a resilient contact element which extends from the card support surface and is preferably higher than the player contacts extending from the card support surface. When a trading card is disposed on the card support surface, an electrical connection between the card contacts and the player contacts is prevented until a predetermined force is applied to the card toward the card support surface. Again, unless sufficient force is applied to the card to ensure that such electrical connection is made, the card player is inoperative.

According to another aspect of the invention, there is provided a portable card player for use with a trading card having electronically stored therein sound

pattern data representative of preselected patterns of sound and means for generating analog electrical signals representative thereof, and having card contacts for enabling electrical contact with the player. The player comprises a player housing dimensioned to removably receive the card; player contacts located in the
5 player housing for making electrical contact with the card contacts and for receiving the analog electrical signals therefrom; a sound generator located in the player housing and including a transducer, for generating sounds in response to the received analog signals; and a power source located in the player housing for supplying electrical power to the trading card and to the sound generator. The
10 player housing preferably includes a card support surface bounded by at least two walls, and preferably three walls, for locating a trading card in the player so that the card contacts register with the player contacts to establish an electrical connection therebetween.

15 In one embodiment, one of the walls bounding the card support surface includes a card retaining element for removably retaining an edge of the trading card. The card retaining element preferably comprises a retaining wall extending upwardly from an edge of the card support surface of the player housing and having a card retaining slot along the length of the inside face of the retaining wall.
20 The retaining slot is preferably shaped to receive an edge of the trading card.

This embodiment can also include a hinged cover which is movable between an open position and a closed position over the card support surface, as previously described.

25

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention will now be described, by way of example only, with reference to the following drawings, in which:

Figure 1a is a perspective view of a preferred embodiment of a trading card made in accordance with the subject invention;
30

Figure 1b is a perspective view of a preferred embodiment of a player made

in accordance with the subject invention;

Figure 2 is a front plan view of the subject card with the flexible sheets removed;

Figure 3 is an expanded sectional view taken along lines 3-3 in Figure 2;

5 Figure 4 is a front plan view of a preferred embodiment of a card player made in accordance with the subject invention, shown with a card physically and electrically connected therewith, and the card player cover in the closed position;

Figure 5 is a sectional view of the card and card player taken along lines 5-5 in Figure 4;

10 Figure 6 is a sectional view of the subject card player, with the card player cover in the open position;

Figure 7 is a simplified circuit diagram of the electrical components of the preferred embodiments of the card and card player when electrically connected;

15 Figure 8a is a perspective view of a trading card for use with the currently preferred embodiment of the card player;

Figure 8b is a perspective view of the currently preferred embodiment of the card player;

Figure 9 is a sectional view of the currently preferred embodiment of the invention shown with a card partially inserted into the player;

20 Figure 10 is a sectional view of the currently preferred embodiment of the invention with the access door open;

Figure 11 is a rear plan view of the currently preferred embodiment of the invention;

25 Figure 12 is a section view of the currently preferred embodiment of the invention shown with a card electronically connected therewith;

Figure 13 is a perspective view of a portable card player according to another embodiment of the invention;

Figure 14 is a side sectional view of the portable card player of Figure 13, in which a trading card is being installed;

30 Figure 15 is a side sectional view of the portable card player of Figure 14, in which the trading card is fully installed and the cover closed;

Figure 16 is a side sectional view of a portable card player according to another embodiment of the invention, in which a trading card is being installed; and

5 Figure 17 is a side sectional view of the portable card player of Figure 16, with the trading card fully installed therein.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to Figures 1a and 1b, in a preferred embodiment, the talking trading card system of the subject invention comprises a trading card 10
10 dimensioned to fit into slot 11 of pocket-sized card player 15.

As shown in Figure 1a, trading card 10 comprises a thin rectangular card housing shown generally as 12 having thin flexible sheets 14, 16, adhesively affixed to the front and back surfaces of card housing 12. Sheets 14, 16 are
15 preferably made from card stock, paper, or other flexible substrates suitable for printing. Typically, front sheet 14 is printed with a reproduction of a color photograph or other image of a sports player, and back sheet 16 is printed with statistics and other personal information about the player. Front sheet 14 is provided with a row of small circular sheet apertures 17 near the bottom edge
20 thereof.

The dimensions of card housing 12 and flexible sheets 14, 16 are preferably equal to the dimensions of conventional sports trading cards, i.e. 2.5 by 3.5 inches. The thickness of housing 12 is preferably less than 2 mm.
25

Referring now to Figures 2-3, card housing 12 comprises a flat panel 18 made of plastic, cardboard, or other light, rigid material, having flat front surface 20 and flat back surface 22. Panel 18 is provided with a large, rectangular aperture 23 sized to receive circuit board 26 containing card contacts 28 and voice chip 30.
30

As shown in Figure 3, panel 18 includes support ledge 32 of reduced

thickness near bottom edge 33 of panel 18 which provides support for lower portion 34 of circuit board 26 and assists in holding circuit board 26 in place. Ledge 32 is provided with a horizontal row of small circular panel apertures 24 situated below aperture 23, and spaced so as to expose card contacts 28. Sheet apertures 17 are likewise located to register with panel apertures 24 and contacts 28, when front sheet 14 is applied to card housing 12 as shown in Figure 1.

Card contacts 28 are recessed below the top surface of card housing panel 18, and apertures 17 and 24 are relatively small, which makes it difficult for a person handling card 10 to touch card contacts 28 with his or her fingers. The protection to card contacts 28 from accidental contact by the person using card 10 provided by this structure reduces the possibility of discharging static electricity onto card contacts 28, which might damage voice chip 30.

Referring now to Figures 4-6, in a preferred embodiment, card player 15, comprises a rectangular box-shaped housing shown generally as 38 containing speaker assembly 40, spring loaded player contacts 42 which make electrical contact with card contacts 28, and batteries 44 which provide electrical power to voice chip 30.

Player housing 38 includes cover 48 pivotally connected to base 50 by hinge 52. Cover 48 is pivotal between an open position as shown in Figure 6 and a closed position as shown in Figure 5. Player housing 38 includes card support platform 54, and battery compartment 55 shaped to hold batteries 44. The front edge of battery compartment 55 forms a card stop surface 56 which stops card 10 once it has been inserted far enough into player 15 such that player contacts 42 register with card contacts 28.

Player contacts 42 preferably take the form of five thin narrow and resilient metal contact strips 43, each having a fixed end 45 affixed in card stop surface 56. Contact strips 43 each extend partway along the card support platform 54, and have

a free end with a resilient tip 47. Card support platform 54 is provided with recesses (not shown) shaped to fit player contact strips 43. In the closed position, shown in Figure 5, cover 48 and card support platform 54 define thin, rectangular card insertion slot 11 (see Figure 1b) shaped to accept the width and thickness of card 10.

When cover 48 is in the open position, as shown in Figure 6, card 10 is slid into player 15 until the leading edge thereof abuts card stop surface 56, thereby registering player contacts 42 with card contacts 28.

When cover 48 is moved to the closed position, as shown in Figure 5, cover 48 applies pressure to card 10 forcing card contacts 28 onto and thereby making electrical contact with player contacts 42.

Having spring loaded player contacts 42 substantially in the form described prevents player contacts 42 and card contacts 28 from having to slide against each other, which would eventually cause wear.

Referring now to Figure 7, voice chip 30 in card 10 is electrically connected to speaker assembly 40 and batteries 44 in player 15 by card contacts 28 and player contacts 42. Contact node 60a electrically connects the negative terminal of batteries 44 to voice chip 30 to provide input voltage. Contact node 60b electrically connects the negative terminal of batteries 44 to voice chip 30 and is used to activate voice chip 30, thereby initiating the playback of recorded sound. Contact node 60c electrically connects the positive terminal of batteries 44 to voice chip 30. Contact node 60d electrically connects the speaker assembly 40 to the electrical analogue output terminal of voice chip 30. Contact node 60e electrically connects voice chip 30 to speaker assembly 40, completing the circuit. Batteries 44 maintain voice chip 30 at a 4.5V input voltage.

Voice chip 30 may be a single chip integrated circuit utilizing VLSI

technology, comprising a 360K ROM 31 for voice data storage, adapted to be powered by a power supply in the range of 2.4 volts to 5.0 volts. Voice chip 30 preferably includes processing means 33 capable of providing voice or other sound output of approximately 10-90 seconds long at a 5K sampling rate. Speaker assembly 40 preferably comprises a piezoelectric speaker 41 mounted in sounding board 46 as shown in U.S. Patent No. 5,641,164, although speaker 41 could comprise a conventional magnetic speaker. Batteries 44 are preferably three 1.5 volt AA batteries in series supplying 4.5 volts of power.

10 Voice chip 30 generates a preselected output signal which recreates the sports player's voice or other recognizable voice or sound recording related to the person or event being featured on card 10. Voice chip 30 is typically programmed by the voice chip manufacturer, using a sound recording stored on an audio tape or the like. This sound recording is digitized by the manufacturer, using a sampling
15 rate of 5K or the like, and etched into or otherwise permanently stored in ROM 31.

 In operation, the voice chip 30 is activated by establishing electrical contact between player contacts 42 and card contacts 28, which completes the circuit shown in Figure 7, thereby drawing current from batteries 44 to voice chip 30. In
20 the preferred embodiment, electrical contact between player contacts 42 and card contacts 28 at contact node 60b is made a fraction of a second after the other electrical contacts have been established, as voice chip 30 requires the initiation signal to be sent after it has been energized. It should be noted, however, that some voice chips do not require the use of a separate, delayed initiation signal, in which
25 case contact node 60b would not be required. The output signal of voice chip 30 through contact node 60d is an analogue signal capable of driving speaker 41, thereby generating sounds. When the output sound signal is completed, voice chip 30 automatically shuts off.

30 The card player 15 of the subject invention may be constructed in an inexpensive fashion to be thin and light and easily carried in the user's pocket,

thereby offering true portability.

Referring now to Figures 8 to 12, illustrated therein is a currently preferred embodiment of a talking card player system made in accordance with the subject
5 invention, comprising trading card player 80, and trading card 100.

Referring to Figure 8a, trading card 100 and the components thereof are identical in construction to trading card 10 and the components thereof discussed hereinbefore. Trading card 100 includes a plurality of card contacts 93 recessed in
10 spaced panel apertures 95.

Referring to Figure 8b, trading card player 80 comprises a housing 82 having a flat top surface 84, surrounded by card positioning walls 86, 88 and top retaining wall 90. Left positioning wall 86 and right positioning wall 88 are spaced
15 far enough apart to slidably receive left side edge 94 and right side edge 96 of trading card 100. Top retaining wall 90 is provided with a card retaining slot 92 shaped to receive top edge 98 of trading card 100. A plurality of spring contacts 101 project through spaced apertures 102 in flat top surface 84. Positioning walls 86, 88 and card retaining slot 92 in top retaining wall 90, assist in registering card
20 contacts 93 with spring contacts 101.

Referring now to Figure 9, trading card 100 is shown as it is about to be pressed against flat top surface 84 of the trading card player 80. Top edge 98 of trading card 100 is inserted into card retaining slot 92 in top retaining wall 90,
25 which along with left positioning wall 86 and right positioning wall 88 helps align panel apertures 95 in trading card 100 with spring contacts 101 and prevents trading card 100 from moving from flat top surface 84 during play. Spring contacts 101 protrude through spaced apertures 103 in flat top surface 84 of trading card player 80 when not engaged with trading card 100. When trading card 100 is
30 pressed to flat top surface 84, contact is made between spring contacts 101 and card contacts 93, allowing current to flow from circuit board 110 of trading card

player 80 to circuit board 99 of playing card 100.

Referring now to Figure 10, body cavity 112 and batteries 114 are exposed by opening access door 116. Access door 116 is pivotally coupled to side 118 of housing 82 by a pliable living hinge 120. As shown, living hinge 120 comprises a triangular shaped notch transversely extending along the junction of side 118 and access door 116, but which could be replaced with any suitable hinge arrangement which permits access door 116 to be opened.

Referring now to Figure 11, batteries 114 are arranged around speaker 122 within body cavity 112 of housing 82. Such an arrangement ensures that batteries 114 do not obstruct any of the sound waves emanating from speaker 122. Batteries 114 are preferably three 1.5 volt AA batteries wired in series to provide 4.5 volts to circuit board 110. Contacts 101 are preferably spring metal contacts having circuit board contact points 126 attached to the face of circuit board 110 to allow an electrical circuit to be established between circuit board 110 and trading card 100. Speaker 122 is preferably mounted to the interior of access door 116 so that the cone of speaker 122 faces outward. The sound generated by speaker 122 is dispersed via two concentric rings of speaker holes 124 in access door 116, within the area covered by the speaker 122. As can be appreciated, the layout and design of speaker holes 124 is variable, their purpose being only to efficiently and accurately disperse the sound generated by speaker 122.

Referring now to Figure 12, when trading card 100 is engaged with trading card player 80, spring contacts 101 maintain contact with card contacts 93 while flexing backward into body cavity 112 of trading card player 80. Spring contacts 101 are attached to circuit board 110 with circuit board contact points 126 that extend through the circuit board 110 allowing spring contacts 101 to be easily connected to the electrical circuitry on circuit board 110 and allowing one end of spring contacts 101 to remain fixed to circuit board 110 while maintaining flexibility when making contact with card contacts 93.

In use, the user places trading card 100 on flat top surface 84 of trading card player 80 by positioning trading card 100 at an angle to flat top surface 84, and sliding the leading top edge 98 of trading card 100 into card retaining slot 92 in top retaining wall 90. Positioning walls 86, 88 help to guide trading card 100 into retaining slot 92. As the user pivots the trading card 100 downwardly, card contacts 93 are automatically aligned with spring contacts 101. Using a thumb or fingers the user then simply presses trading card 100 firmly against flat top surface 84 which engages card contacts 93 with spring contacts 101. This simple engagement process completes an electrical connection which results in the playing of the sound pattern data stored in trading card 100. After listening to the playing of the sound pattern data, the user then ceases applying pressure to trading card 100 and the electrical connection is broken. Trading card 100 is then removed from flat top surface 84 of trading card player 80.

Referring now to Figures 13-15, another preferred embodiment of the invention is illustrated. In Figure 13 is shown a trading card player 80 which comprises a housing 82 having a flat top surface 84 which serves as a card support surface. In one embodiment, side walls 86, 88 and top and bottom retaining walls 90, 91 form the boundaries of the card support surface, which is sized to receive a trading card as previously described. Alternatively, the player housing can include a card support surface with only two bounding walls, such as, for example, a side wall 86 and a top wall 90, for location of the trading card thereon. Preferably, three bounding walls are employed for better location of the card on the card support surface and registration of the card contacts with the player contacts. Primary spring contacts 101 extend through corresponding apertures 102 in the card support surface and are located to register with card contacts 93 on the trading card when the card is disposed on the card support surface.

In one preferred embodiment, the player housing includes a hinged mounted cover 130 which is capable of moving between an open position, shown in Figures 13 and 14, and a closed position, shown in Figure 15, over the card

support surface. The cover is intended to confer some measure of protection to the card to avoid scratches, as well as to the player, to reduce accumulation of dirt or dust within the player housing. It also provides a predetermined downward force on the card so that an electrical connection is established and maintained between the card and the player. The cover is preferably made of a lightweight, substantially transparent material, such as plastic, and may be tinted or otherwise colored to impart desirable features to the images shown on a card.

In the illustrated embodiment, at least one tab 132 extends outwardly from at least one side of the cover 130. At least one corresponding slot 134 is located in a wall of the housing so as to engage with the tab 132 when the cover is closed, thereby retaining a card within the player. Other types of frictional engaging elements for the cover and player housing may be substituted for the illustrated embodiments and are considered to be within the scope of the invention.

The engagement of the cover 130 with the player housing via frictional engagement elements 132, 134 or their equivalents exerts sufficient pressure on a card 100 within the player 80 to ensure that electrical contact is made between the card contacts 93 and the player contacts 101. This feature relieves the user from having to maintain manual pressure on the card in order to establish and maintain an electrical connection to activate the voice recording.

A grip recess 136 in the player housing facilitates the disengagement of the cover from its retaining element(s) in the base by providing a place for the user to grip the base while moving the cover to an open position, such as to remove or install a card.

As shown most clearly in Figures 14 and 15, a trading card 100 can be installed in the player 80 so as to lie substantially flat on card support surface 84 and abut side walls 86, 88 and top and bottom walls 90, 91. The cover 130 is movable on its hinge 138 from an open position, shown in Figure 14, to a closed

position, shown in Figure 15. In the illustrated embodiment, tab 132 on the cover 130 engages with slot 134 on the player housing to retain the cover in its closed position. When a trading card 100 is installed in the player, the pressure from the cover in the closed position pushes the card 100 toward the card support surface 84, thereby engaging the card contacts 93 with the player contacts 101 and establishing an electrical connection. The cover can be released from its closed position by pulling up on the cover, thereby disengaging the tab 132 from the slot 134. The grip recess 136 provides an access area at the forward edge of the cover 130 in order to facilitate disengagement of the cover from the housing.

Referring now to Figures 16 and 17, another embodiment of the invention is illustrated. In this embodiment, the player housing includes a base and a card support surface which is bounded by at least two walls, such as, for example, a side wall 86 or 88 and a top or bottom wall 90 or 91. The bounding walls facilitate location of the trading card on the card support surface so the player contacts and card contacts are in registration. No retaining slot or other structure for retaining the card in the player is needed, and no cover is required. The bounding walls may be dimensioned to be the same height as the trading card so that the card forms a flush surface with the tops of the bounding walls around the card.

In this embodiment, the card is placed onto the card support surface and abutted against the bounding walls so that the respective contacts on the card and the player are in registration. Manual pressure applied to the card in the direction of the card support surface pushes the contacts together and establishes an electrical connection between the card and player. No cover is shown in this embodiment; however, a cover which can be closed over the card support surface can be included. As described above in connection with the embodiment of FIGS. 13-15, the cover, when closed, applies a predetermined pressure to a trading card installed in the player housing, so that manual pressure on the card is not required for an electrical connection to be established.

Alternatively, as shown in the embodiment of FIG. 9, one of the walls bounding the card support surface can include a retaining slot 92 for removably receiving an edge of the trading card.

5 In another embodiment of the invention, a resilient contact element 138 extends from the card support surface 84. The resilient contact element 138 prevents an electrical connection from being established between a trading card and the player until and unless a predetermined force is applied to the card in the direction of the card support surface. The predetermined force is preferably in
10 excess of the characteristic resilient force of the resilient contact element, so that when the card is pressed into the card support surface the card contacts are in registration with the player contacts.

The resilient contact element 138 preferably extends further from the card
15 support surface than the player contacts which also extend from the card support surface, so that the card rests on the resilient contact element and the card contacts do not make an electrical connection with the player contacts unless a predetermined force is applied to the card. In addition, the resilient contact element preferably is located relatively close to the player contacts, as shown in
20 Figure 16, so that the card does not rock or pivot on the resilient contact element when disposed on the card contact surface.

The resilient contact element can be, for example, a secondary conductive player contact 101' located on the player housing near the primary player contacts.
25 Such a secondary contact 101' may be, for example, shorter than the primary contacts 101, so that an electrical connection is not established when the card is merely disposed in the player, but not pressed. A connection is established when a predetermined downward force is applied to the card, so that all player contacts are in registration with the card contacts.

30

Alternatively, the resilient contact element 138 can be a separate leaf spring

or the equivalent which is disposed on the card support surface. The resilient contact member need not be electrically conductive unless it is also functioning as a primary electrical contact 101.

5 Any means for applying the necessary pressure to the trading card to establish the required electrical connection may be employed. A cover, clamp or the like may be used to supply the required pressure, or manual pressure may be applied.

10 While the subject invention has been illustrated and described as comprising a card containing an integrated circuit chip with both processing and data storage capabilities, the invention may comprise a card containing a chip with only data storage capability, with the player containing a chip with processing capabilities.

15 While the subject invention has been illustrated and described as comprising a card having a card housing comprising a flat housing panel preferably made of plastic, cardboard or other suitable material, a less expensive form of the card may forego the use of a housing panel and may simply consist of the front flexible sheet and the back flexible sheet affixed to each other and encapsulating the circuit
20 board.

 While the subject invention has been illustrated and described with respect to sports trading cards, it is equally applicable to other types of cards, such as cards pertaining to entertainment, politics, history, religion, nature and other
25 applications.

 Thus, while what is shown and described herein constitutes preferred embodiments of the subject invention, it should be understood that various changes can be made without departing from the subject invention, the scope of which is
30 defined in the appended claims.

We Claim:

1. A portable card player for use with a trading card having electronically stored therein sound pattern data representative of preselected patterns of sound
5 and means for generating analog electrical signals representative thereof, and having card contact means for enabling electrical contact with the player, the player comprising:
- A. a player housing dimensioned to removably receive the trading card;
 - 10 B. player contact means located in the player housing for making electrical contact with the card contact means and for receiving said analog electrical signals therefrom;
 - C. sound generating means located in the player housing,
15 said sound generating means including a transducer, for generating sounds in response to said received analog signals; and
 - D. power means located in the player housing for
20 supplying electrical power to the trading card and to the sound generation means;
- wherein the player housing includes a base, a cover hingedly connected thereto, and a card support surface, the cover being movable between an open position and a closed position over the card support surface, whereby when a trading card is installed in the player on the card support surface and the cover is in
25 the closed position, the trading card is substantially enclosed within the player, and the card contact means registers with the player contact means to establish an electrical connection therebetween.
2. A portable card player according to claim 1, wherein the player housing
30 includes means for retaining the cover in a closed position, including means for frictionally engaging the cover with the base.

3. A portable card player according to claim 2, wherein the means for frictionally engaging the cover with the base comprises at least one tab on one of the cover and the base, and at least one corresponding slot on the other of the cover and the base, wherein the tab engages with the slot when the cover is in a closed position.

4. A card player according to claim 3, wherein the player contact means comprises one or more thin spaced narrow conductive primary player contacts, each of the primary contacts having a fixed end extending from a circuit board within the player housing and a free end with a resilient tip protruding to a predetermined height through an aperture in the card support surface of the player housing.

5. A portable card player according to claim 4, further including at least one conductive secondary player contact which protrudes from the card support surface to a height which is less than the predetermined height to which the primary player contacts protrude from the card support surface, so that an electrical connection between the card contact means and the player contact means is prevented until a predetermined force is applied to the card in the direction of the card support surface.

6. A portable card player according to claim 4, wherein the player housing includes a resilient element extending from the card support surface to a height which is greater than the height of the primary player contacts, wherein when a trading card is disposed on the card support surface, a resilient force of the resilient element prevents the establishment of an electrical connection between the card contact means and the player contact means until a predetermined force is applied to the card in the direction of the card support surface.

7. A card player according to claim 4, wherein the player housing includes a hinged access door for providing access to the power means.

8. A card player according to claim 4, wherein the power means comprises a battery holding compartment for at least one battery.

5 9. A card player according to claim 7, wherein the sound generating means comprises a speaker mounted to the inside of the access door, the sound dispersing cone of said speaker facing the access door, and wherein the access door is provided with a plurality of holes to aid in the dispersal of sound emanating from said speaker.

10 10. A portable trading card playing system capable of generating sounds, comprising a card player and a plurality of cards, wherein each card comprises:

- 15 A. a card body of predetermined dimensions and having a front surface and a back surface, said front and back surfaces permanently displaying graphics and text of interest to card traders,
- B. a voice chip located between the front surface and the back surface of the card body having permanently stored thereon digital sound pattern data representative of preselected patterns of sound
- 20 correlated with the graphics and text, the voice chip including processing means for processing the sound pattern data and generating analog electrical signals for generating said preselected pattern of sound, and
- 25 C. card contact means electrically connected to the voice chip for enabling electrical contact with the card player;

wherein the card player comprises a player housing dimensioned to removably receive the card and containing:

- 30 A. A base,
- B. a cover hingedly connected thereto,
- C. a card support surface,

D. player contact means for making electrical contact with the card contact means to enable transfer of said electrical signals to said housing,

5 E. sound generating means including a transducer for generating sounds in response to said electrical signals,

F. power means for supplying electrical power to the voice chip and to the sound generating means,

10 wherein the cover is movable between an open position and a closed position over the card support surface, whereby when a trading card is installed in the player on the card support surface and the cover is in the closed position, the trading card is substantially enclosed within the player, and the card contact means registers with the player contact means to establish an electrical connection therebetween.

15 11. A portable trading card playing system according to claim 10, wherein the player housing includes means for retaining the cover in a closed position, including means for frictionally engaging the cover with the base.

20 12. A portable trading card playing system according to claim 11, wherein the means for frictionally engaging the cover with the base comprises at least one tab on one of the cover and the base, and at least one corresponding slot on the other of the cover and the base, wherein the tab engages with the slot when the cover is in a closed position.

25 13. A portable trading card playing system according to claim 11, wherein the player contact means comprises one or more thin spaced narrow conductive primary player contacts, each of the primary contacts having a fixed end extending from a circuit board within the player housing and a free resilient end protruding to a predetermined height through an aperture in the card support surface of the
30 player housing.

14. A portable card player according to claim 13, further including at least one
conductive secondary player contact which protrudes from the card support surface
to a height which is less than the predetermined height to which the primary player
contacts protrude from the card support surface, so that an electrical connection
5 between the card contact means and the player contact means is prevented until a
predetermined force is applied to the card in the direction of the card support
surface.

15. A portable card player according to claim 13, wherein the player housing
10 includes a resilient element extending from the card support surface to a height
which is greater than the height of the primary player contacts, wherein when a
trading card is disposed on the card support surface, a resilient force of the resilient
element prevents the establishment of an electrical connection between the card
contact means and the player contact means until a predetermined force is applied
15 to the card in the direction of the card support surface.

16. A portable trading card playing system according to claim 13, wherein the
player housing includes a hinged access door for providing access to the power
means.
20

17. A portable trading card playing system according to claim 13, wherein the
power means comprises a battery holding compartment for at least one battery.

18. A portable trading card playing system according to claim 16, wherein the
25 sound generating means comprises a speaker mounted to the inside of the access
door, the sound dispersing cone of said speaker facing the access door, and
wherein the access door is provided with a plurality of holes to aid in the dispersal
of sound emanating from said speaker.

30 19. A portable card player for use with a trading card having electronically
stored therein sound pattern data representative of preselected patterns of sound

and means for generating analog electrical signals representative thereof, and having card contact means for enabling electrical contact with the player, the player comprising:

- 5 A. a player housing dimensioned to removably receive the card;
- B. player contact means located in the player housing for making electrical contact with the card contact means and for receiving said analog electrical signals therefrom;
- 10 C. sound generating means located in the player housing, said sound generating means including a transducer, for generating sounds in response to said received analog signals; and
- D. power means located in the player housing for
15 supplying electrical power to the trading card and to the sound generation means;

 wherein the player housing includes a card support surface bounded by at least two walls for locating a trading card in the player so that the card contact means registers with the player contact means to establish an electrical connection
20 therebetween.

20. A portable card player according to claim 19, wherein one of the walls bounding the card support surface includes card retaining means for removably retaining an edge of the trading card.

25

21. A portable card player according to claim 20, wherein the card retaining means comprises a retaining wall extending upwardly from an edge of the card support surface of the player housing and having a card retaining slot along the length of the inside face of the retaining wall, the retaining slot being shaped to
30 receive an edge of the trading card.

22 A portable card player according to claim 19 or 20, wherein the player housing further includes a base and a cover hingedly mounted to the base, the cover being movable between an open position and a closed position over the card support surface, whereby when a trading card is installed in the player on the card support surface and the cover is in the closed position, the trading card is
5 substantially enclosed within the player, and the card contact means registers with the player contact means to establish an electrical connection therebetween.

23. A portable card player according to claim 19, wherein the player contact means comprises one or more thin spaced narrow conductive primary player
10 contacts, each of the primary contacts having a fixed end extending from a circuit board within the player housing and a free resilient end protruding to a predetermined height through an aperture in the card support surface of the player housing.

15 24. A portable card player according to claim 23, further including at least one conductive secondary player contact which protrudes from the card support surface to a height which is less than the predetermined height to which the primary player contacts protrude from the card support surface, so that an electrical connection
20 between the card contact means and the player contact means is prevented until a predetermined force is applied to the card in the direction of the card support surface.

25 25. A portable card player according to claim 23, wherein the player housing includes a resilient element extending from the card support surface to a height which is greater than the height of the primary player contacts, wherein when a trading card is disposed on the card support surface, a resilient force of the resilient element prevents the establishment of an electrical connection between the card contact means and the player contact means until a predetermined force is applied
30 to the card in the direction of the card support surface.

26. A portable card player according to claim 24 or 25, wherein the player housing further includes a base and a cover hingedly mounted to the base, the cover being movable between an open position and a closed position over the card support surface, whereby when a trading card is installed in the player on the card support surface and the cover is in the closed position, the trading card is
- 5 substantially enclosed within the player, and the card contact means registers with the player contact means to establish an electrical connection therebetween.

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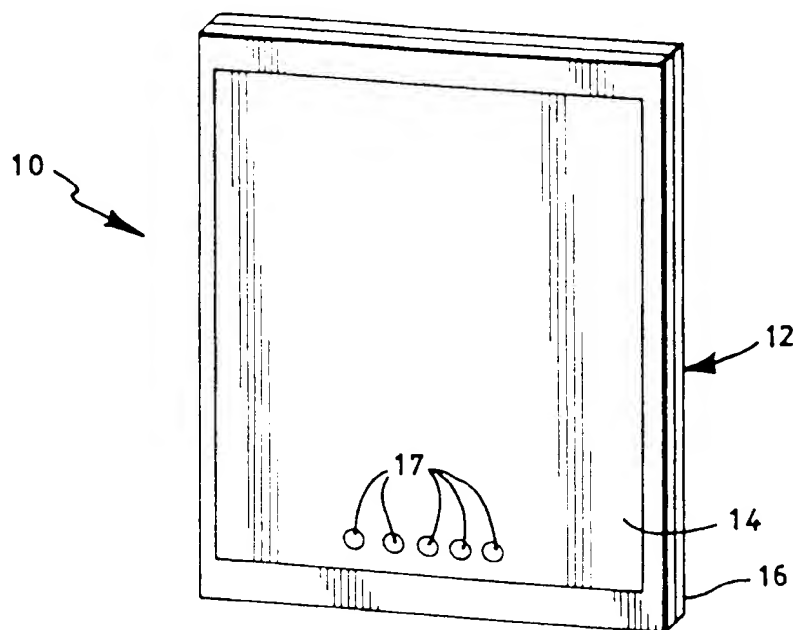


FIG. 1a

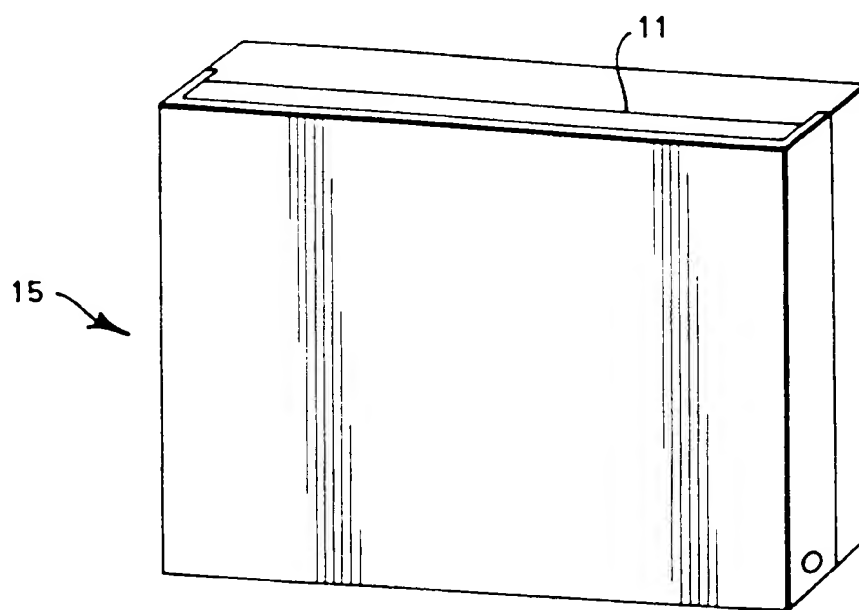
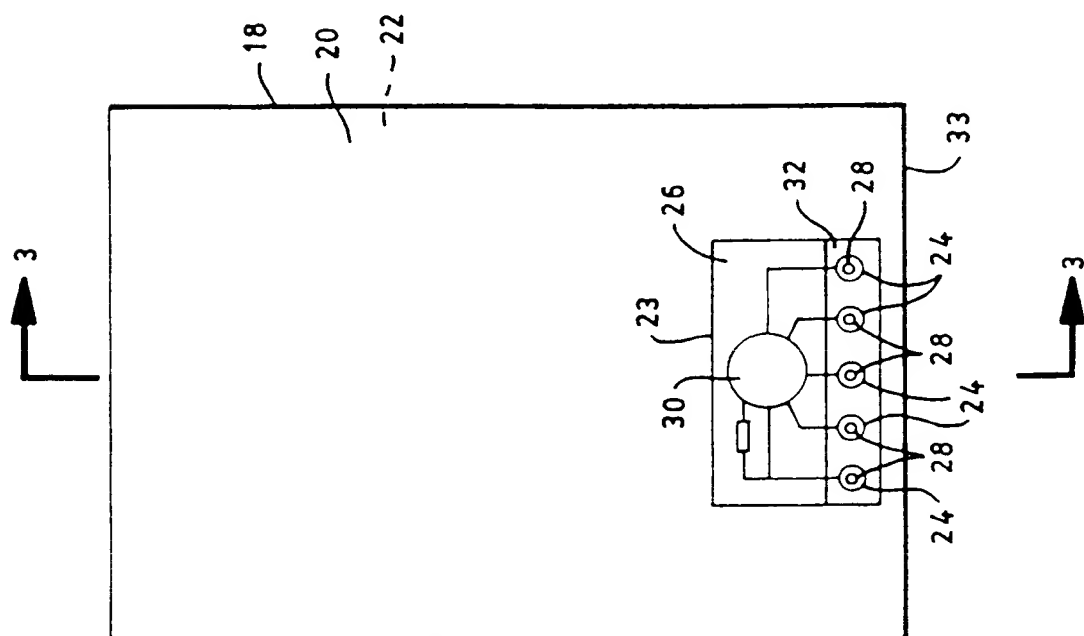
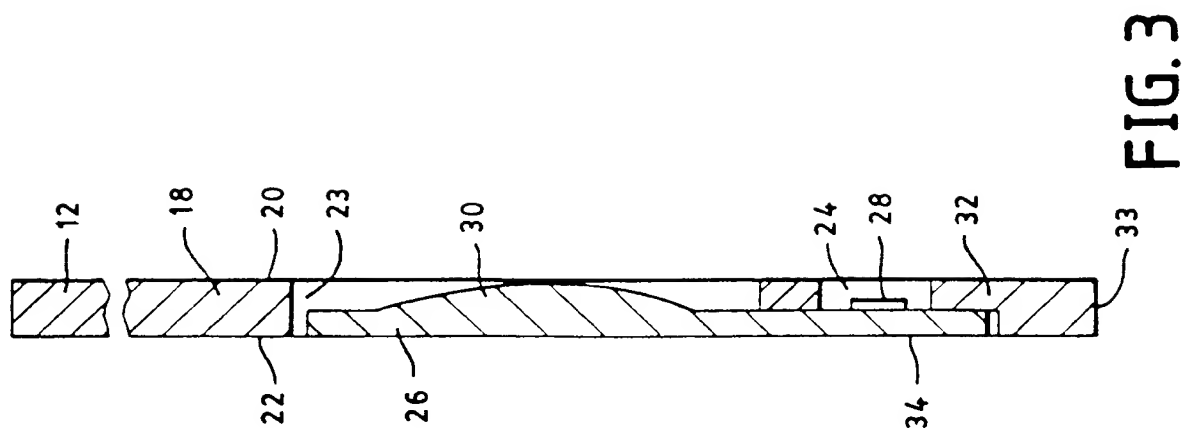


FIG. 1b



SUBSTITUTE SHEET (rule 26)

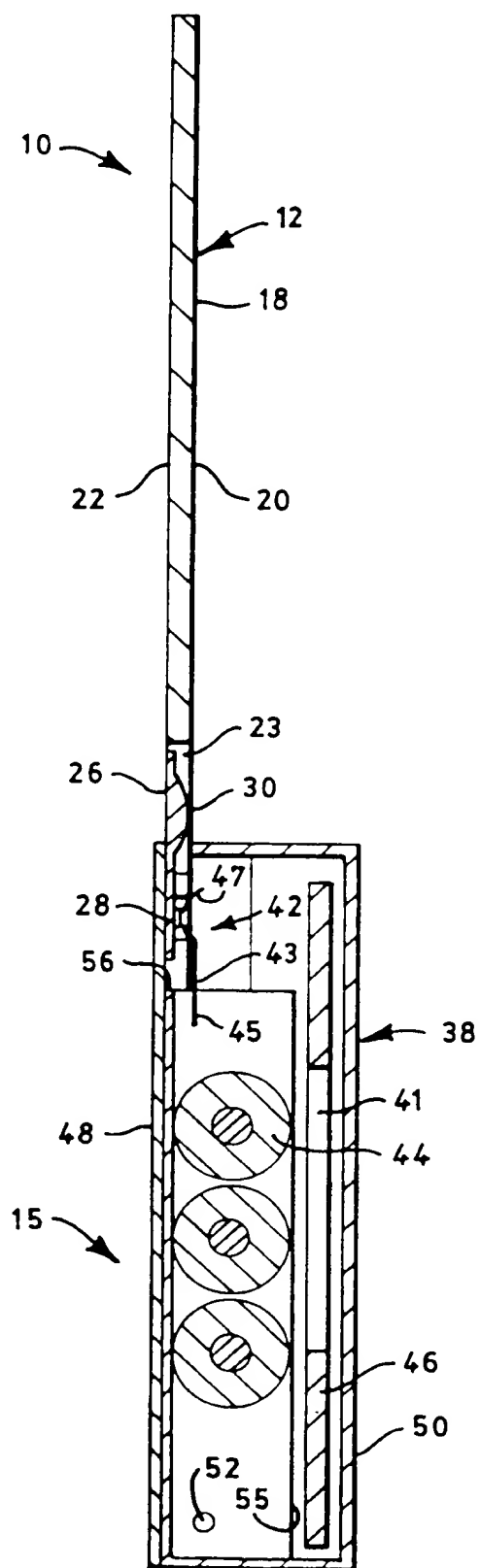


FIG. 5

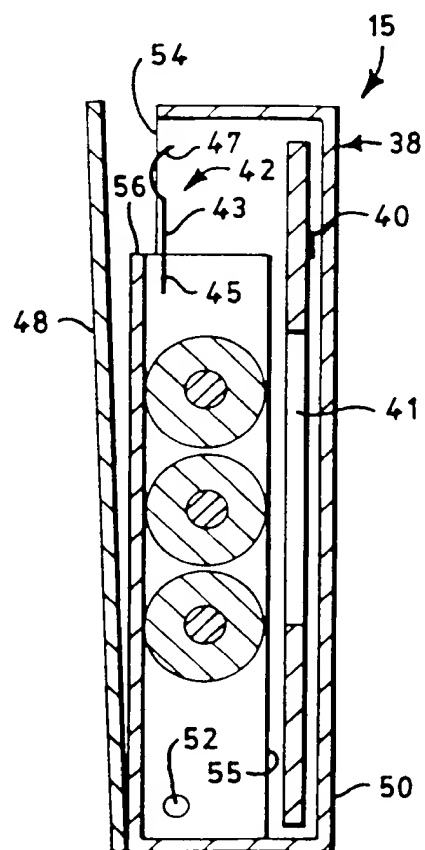
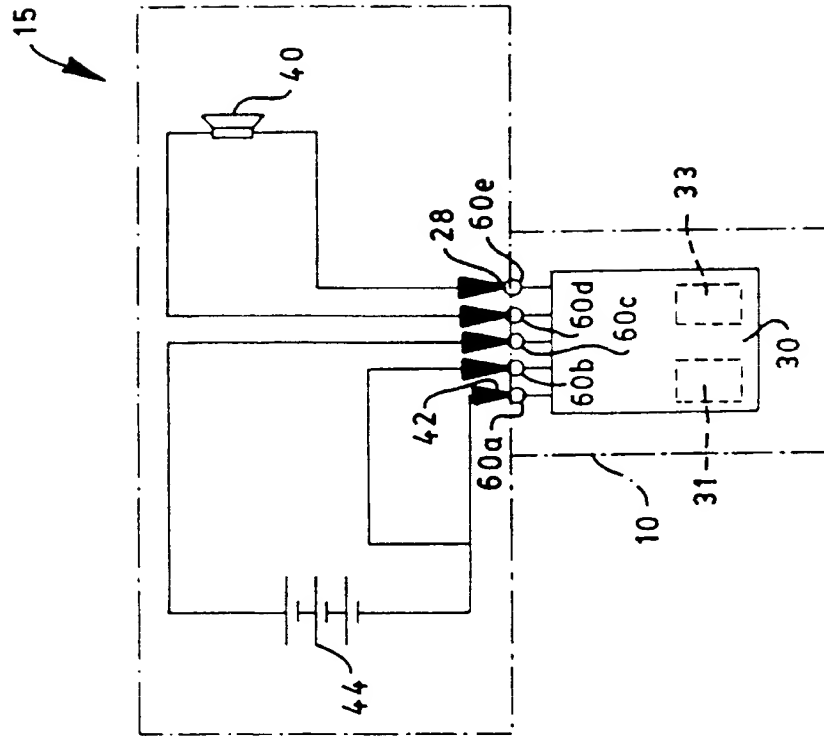
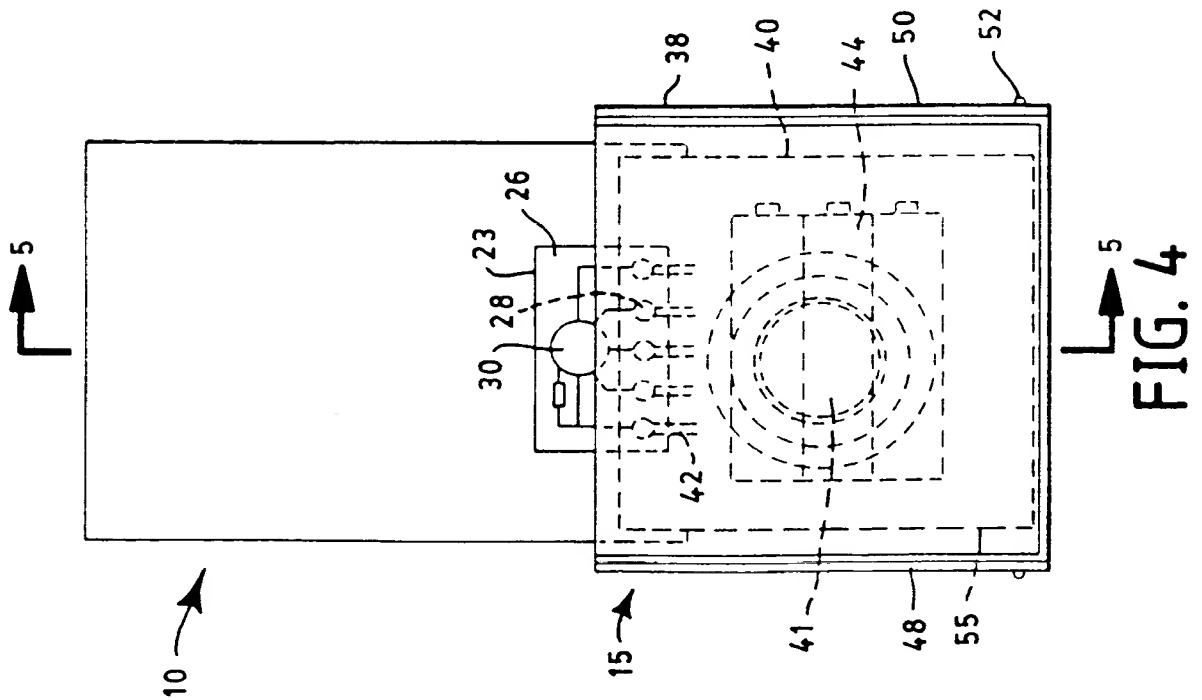


FIG. 6



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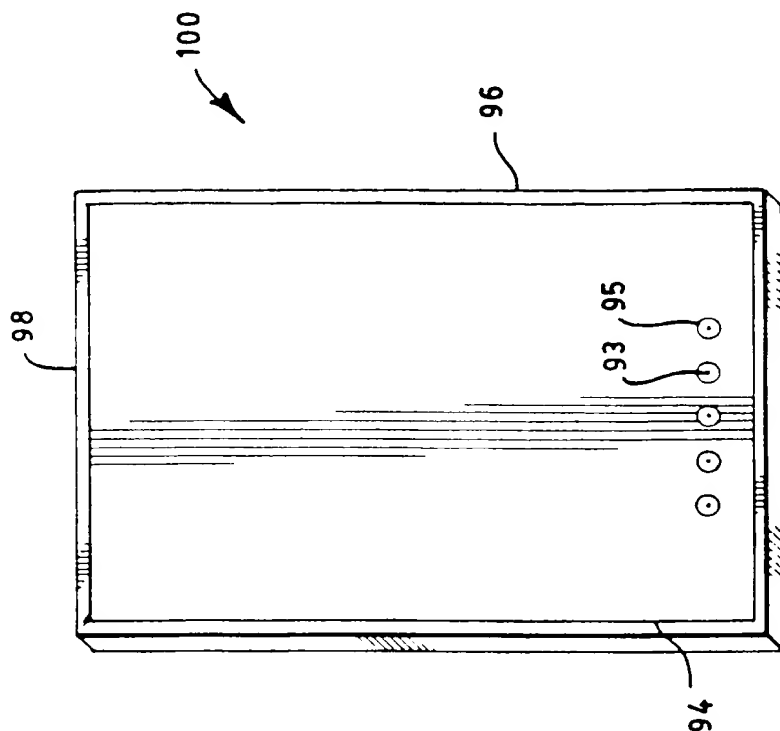


FIG. 8a

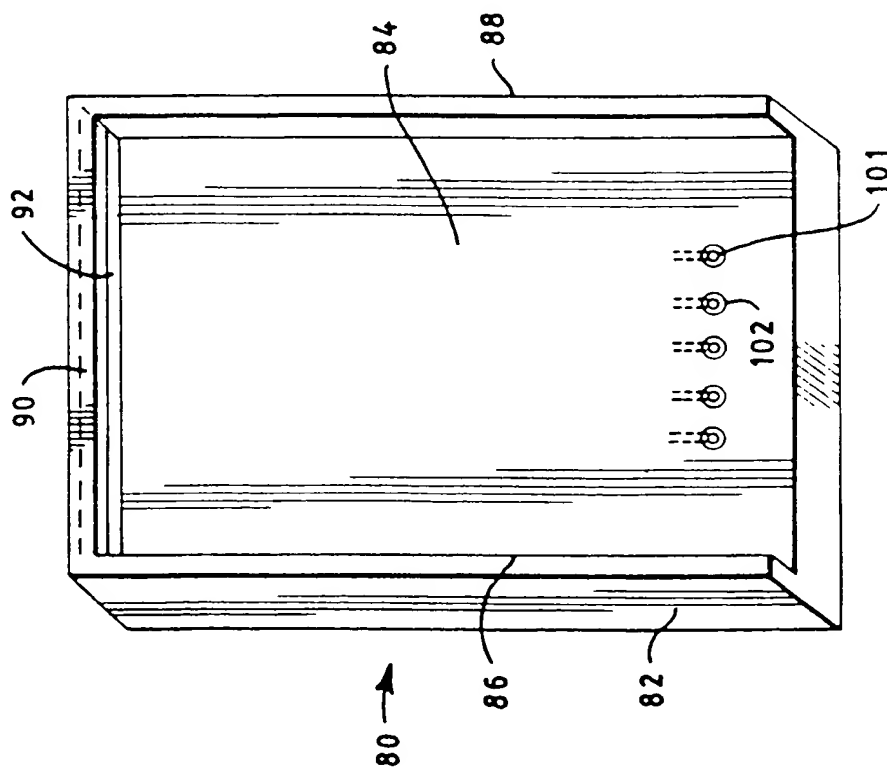


FIG. 8b

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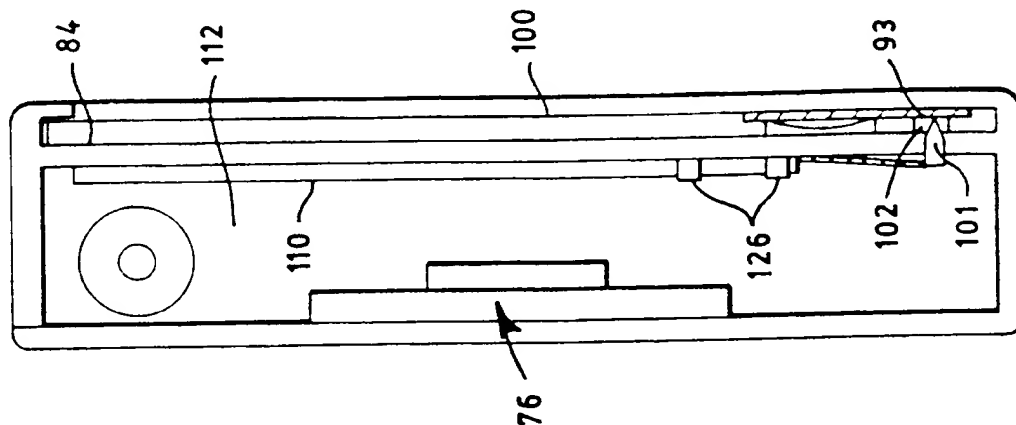


FIG. 12

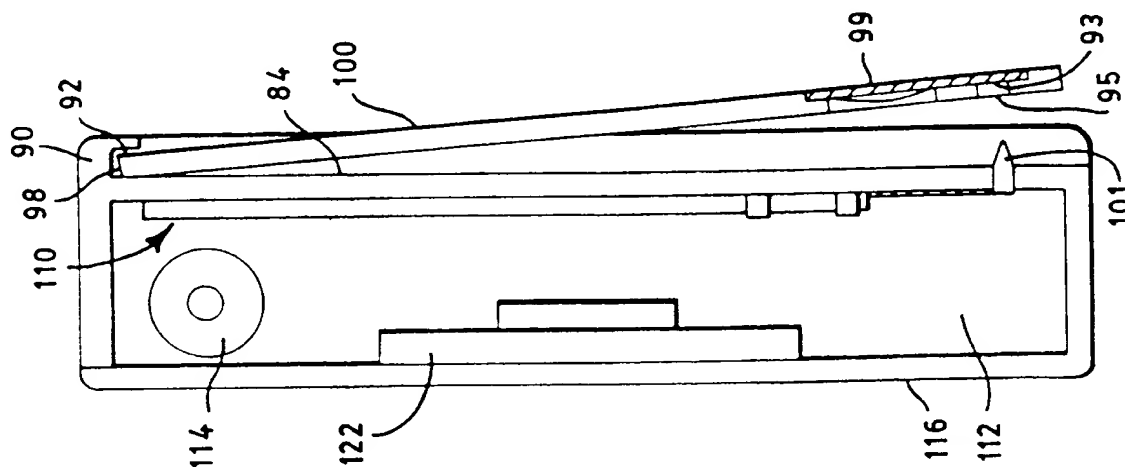


FIG. 9

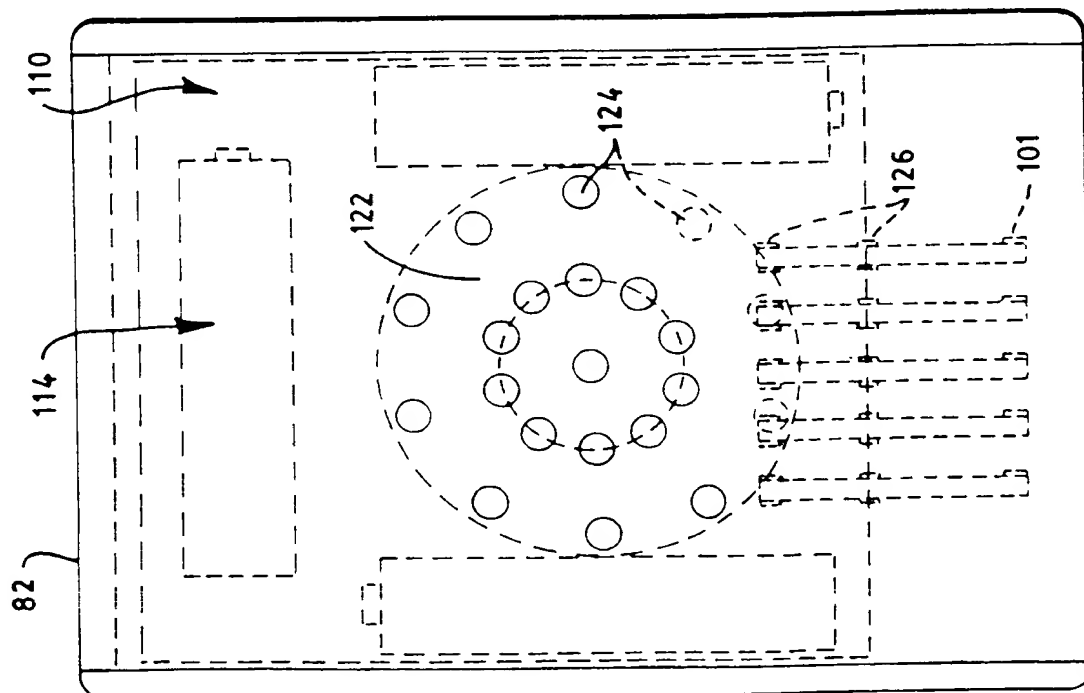


FIG. 11

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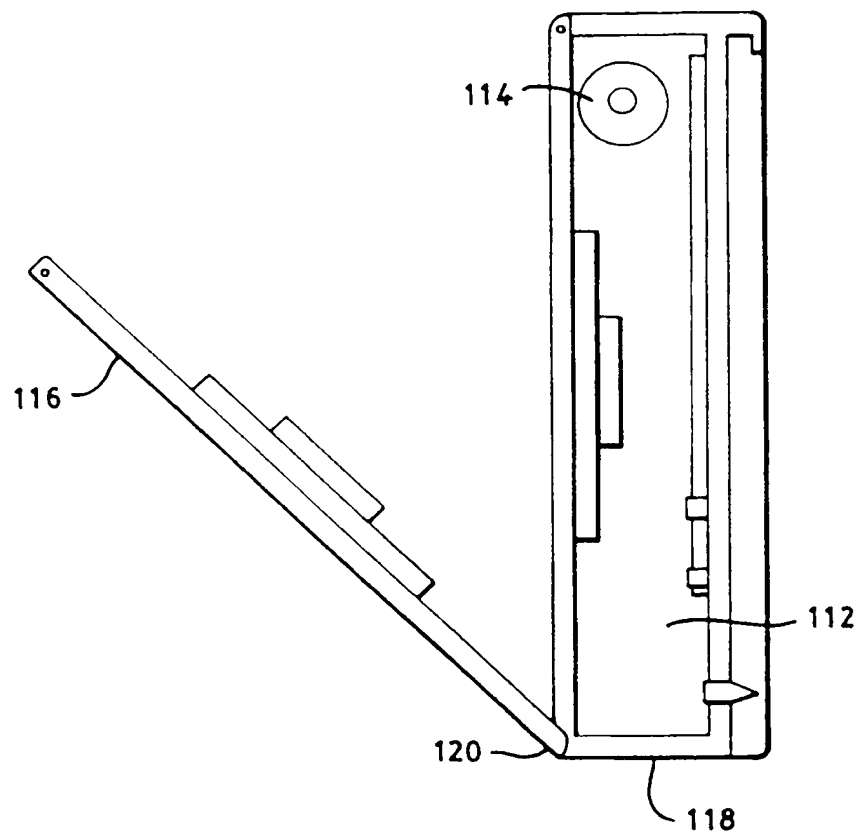
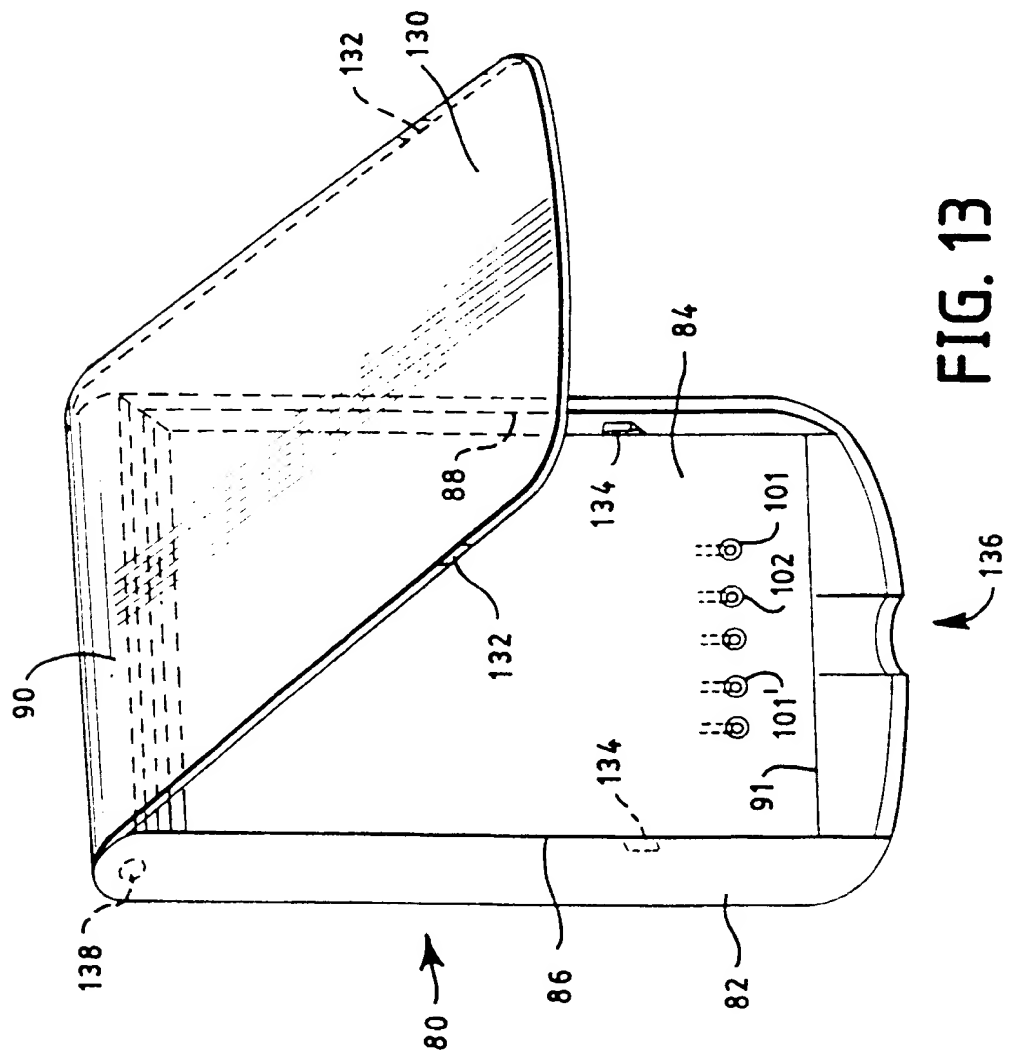


FIG. 10



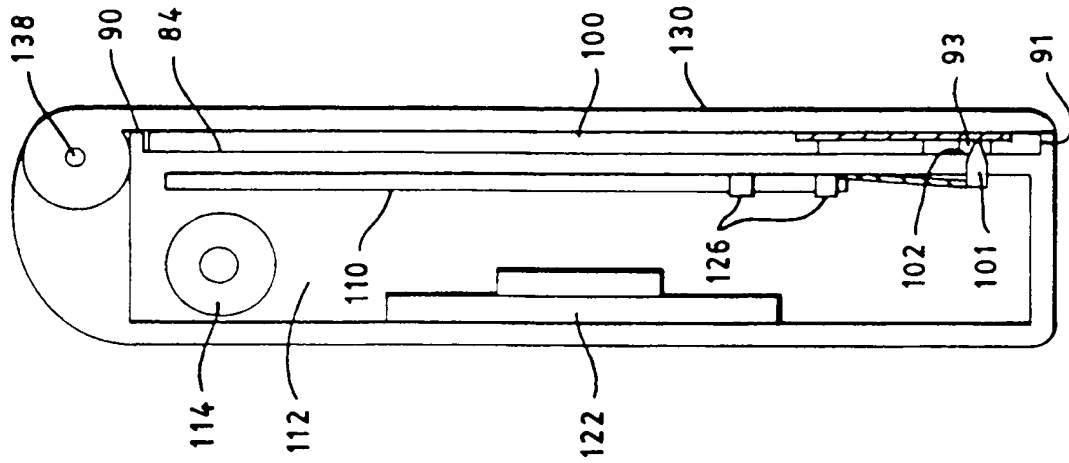


FIG. 15

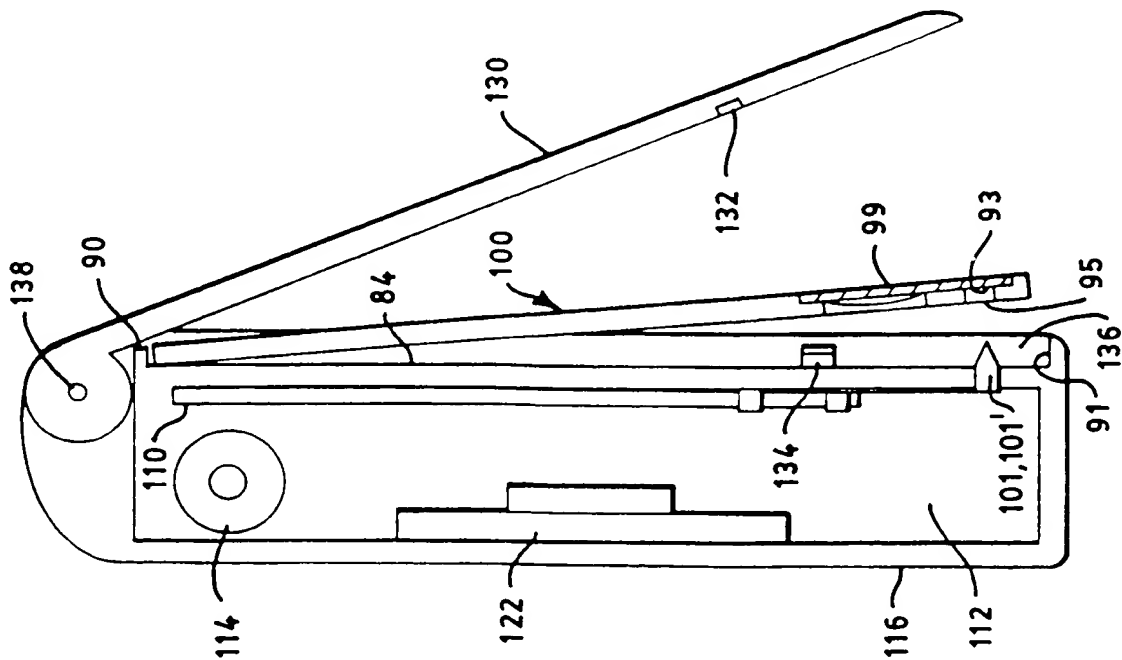


FIG. 14

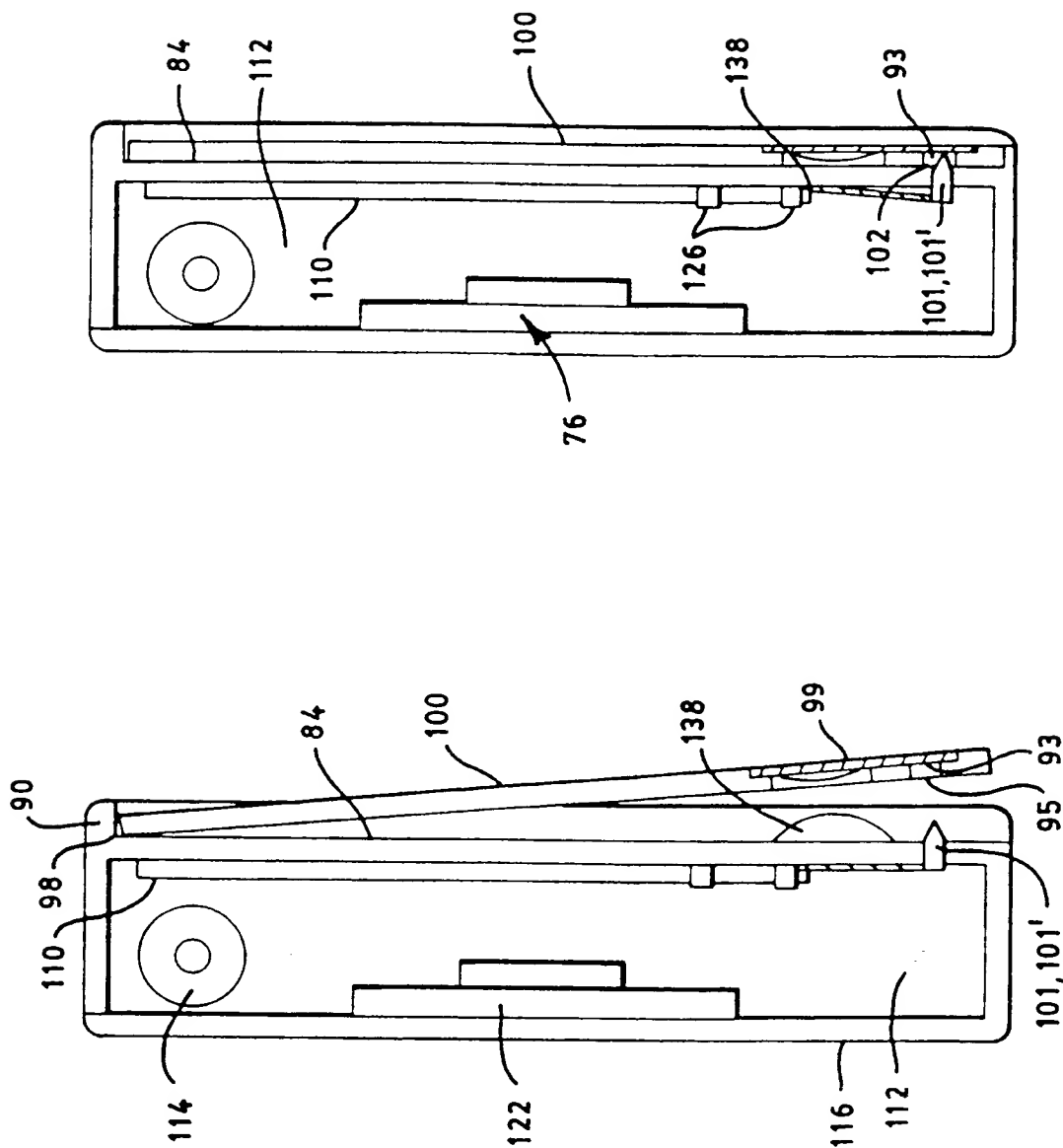


FIG. 17

FIG. 16

INTERNATIONAL SEARCH REPORT

 International application No.
 PCT/US98/26601

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) : B42D 15/00

US CL : 283/56, 75

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 283/56, 75; 704, 270, 272

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

APS, IEL

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X,P	US 5,836,616 A (COOPER) 17 November 1998, Fig. 5, 6, col. 6 lines 39-63)	1-26
Y	US 5,588,678 A (YOUNG) 31 December 1996, col. 2 line 59 - col. 3 line 8	1-26
X	US 5,480,156 A (DOEDERLEIN ET AL) 02 January 1996, col. 2 line 20 - col. 3 line 30	1-26
Y	US 5,365,686 A (SCOTT) 22 November 1994, col. 2 line 60 - col. 3 line 21	1-26
Y	Information Storage Devices Inc., SD ISD1012A Data Sheet, February 1992	1,10,19
Y	US 5,045,327 A (TARLOW ET AL) 03 September 1991, Fig. 8, subblock 20	1,10,19

☒ Further documents are listed in the continuation of Box C.
 ☐ See patent family annex.

* Special categories of cited documents.	*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
A document defining the general state of the art which is not considered to be of particular relevance	*X* document of particular relevance, the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
B earlier document published on or after the international filing date	*Y* document of particular relevance, the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	*A* document member of the same patent family
O document referring to an oral disclosure, use, exhibition or other means	
P document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

09 FEBRUARY 1999

Date of mailing of the international search report

12 APR 1999

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Authorized officer

DAVID R. HUDSPETH

Telephone No. (703) 308-4825

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US98/26601

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,118,299 A (BURNS ET AL) 02 June 1992, Figs. 1,2, and col. 1 lines 1-42 - teaches conical electrical interconnects	1,10,19

